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ABSTRACT

This paper gives an introduction to cooperative learning (CL), providing a definition of what it is and is not (pseudo-learning groups, traditional classroom learning groups), discussing basic principles, describing two basic types of CL (formal and informal), and listing the benefits of CL suggested by previous research. In order to understand the power of cooperation, it is necessary to understand what is and is not cooperative effort, the types of cooperative learning, the five basic elements that make cooperation work (positive interdependence, individual accountability, face-to-face interaction, social skills, and group processing), and the outcomes that result when cooperation is carefully structured (achievement, psychological health and social competence). While lessons may be structured competitively, individualistically, and cooperatively, cooperation has by far the most powerful and positive influence on instructional outcomes. What makes cooperative learning unique is the quantity and quality of research supporting its use. When efforts are structured cooperatively, there is considerable evidence that students will achieve higher (learn more, use higher level reasoning strategies, build more complete and complex conceptual structures, and retain information learned more accurately), build more supportive and positive relationships (including relationships with diverse individuals), and develop in more healthy ways (psychological health, self-esteem, ability to manage stress and adversity). (Contains 12 references.) (KFT)

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Chapter 2

What Makes Cooperative Learning Work

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This paper will give an introduction to cooperative learning (CL) by providing a definition of what it is and isn't, providing basic principles, describing two basic types of cooperative learning, and listing the benefits of CL suggested by previous research.

In order to understand the power of cooperation, it is necessary to understand what is and is not a cooperative effort, the types of cooperative learning, the five basic elements that make cooperation work, and the outcomes that result when cooperation is carefully structured.

What Is and Is Not a Cooperative Group

Some kinds of learning groups facilitate student learning and increase the quality of life in the classroom. Other types of learning groups hinder student learning and create disharmony and dissatisfaction with classroom life. To use cooperative learning effectively, you must know what is and is not a cooperative

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group. The following may be helpful in answering the question, *"What type of group am I using?"* (Johnson, Johnson, & Holubec, 1993).

Pseudo-Learning Group
Students are assigned to work together but they have no interest in doing so. They believe they will be evaluated by being ranked from the highest performer to the lowest performer. While on the surface students talk to each other, under the surface they are competing. They see each other as rivals who must be defeated, who block or interfere with each other's learning, hide information from each other, attempt to mislead and confuse each other, and distrust each other. The result is that the sum of the whole is less than the potential of the individual members. Students would achieve more if they were working alone.

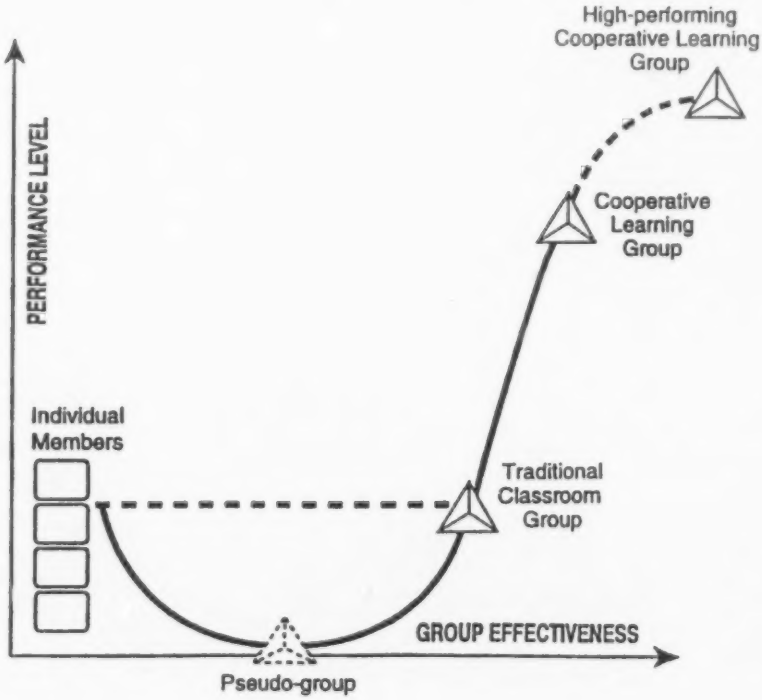
Traditional Classroom Learning Group
Students are assigned to work together and accept that they have to do so. Assignments are structured, however, so that very little joint work is required. Students believe that they will be evaluated and rewarded as individuals, not as members of the group. They interact primarily to clarify how assignments are to be done. They seek each other's information, but have no motivation to teach what they know to their groupmates. Helping and sharing is minimized. Some students loaf, seeking a free ride on the efforts of their more conscientious groupmates. The conscientious members feel exploited and do less. The result is that the sum of the whole is more than the potential of some of the members, but the more hard working and conscientious students would perform better if they worked alone.

Cooperative Learning Group
Students work together to accomplish shared goals. Students are given two responsibilities: to maximize their own learning and to maximize the learning of all other group members. Students perceive that they can reach their learning goals if and only if the other students in the learning group also reach their goals (Deutsch, 1949). Thus, students seek outcomes that are beneficial to all those with whom they are cooperatively linked. Students discuss material with each other, help one another understand it, and encourage each other to work hard. Individual performance is checked regularly to ensure that all students are contributing and learning. A criteria-referenced evaluation system is used. Any assignment in any curriculum for any age student can be done cooperatively. There is an emphasis on continuous improvement of the quality of learning and teamwork processes. The result is that the group is more than a sum of its parts and all students perform better academically than they would if they worked alone.

High-Performance Cooperative Learning Group
This is a group that meets all the criteria for being a cooperative learning group and outperforms all reasonable expectations, given its membership. What differentiates the high-performance group from the cooperative learning group is the level of commitment members have to each other and the group's success. Members' mutual concern for each other results in the group performing far above expectations, and also to have lots of fun. The bad news about high-performance cooperative groups is that they are rare. Most groups never achieve this level of development.

The learning group performance curve in Figure 1 illustrates that how well any small group performs depends on how it is structured. Placing people in the same room and calling them a cooperative group does not make them one. Study groups, project groups, lab groups, home rooms, and reading groups are

The Learning Group Performance Curve



groups, but they are not necessarily cooperative. Even with the best of intentions, teachers may be using traditional classroom learning groups rather than cooperative learning groups. Teachers should structure students into learning groups, diagnose where on the group performance curve the groups are, keep strengthening the basic elements of cooperation, and move the groups up the performance curve until they are truly cooperative learning groups.

Basic Elements of Cooperation

In order for a lesson to be cooperative, five basic elements are essential and need to be included (Johnson & Johnson, 1989; Johnson, Johnson, & Holubec, 1993). The five essential elements are as follows.

1. Positive Interdependence

Positive interdependence is the perception that you are linked with others in a way so that you cannot succeed unless they do (and vice versa); that is, their work benefits you and your work benefits them. It promotes a situation in which students work together in small groups to maximize the learning of all members, sharing their resources, providing mutual support, and celebrating their joint success. Positive interdependence is the heart of cooperative learning. Students must believe that they sink or swim together. Within every cooperative lesson, positive goal interdependence must be established through ***mutual learning goals*** (learn the assigned material and make sure that all members of your group learn the assigned material). In order to strengthen positive interdependence, ***joint rewards*** (if all members of your group score 90 percent correct or better on the test, each will receive 5 bonus points), ***divided resources*** (giving each group member a part of the total information required to complete an assignment), and ***complementary roles*** (reader, checker, encourager, elaborator) may also be used. For a learning situation to be cooperative, students must perceive that they are positively interdependent with other members of their learning group.

It is positive interdependence that creates the overall superordinate goals that unite diverse students into a common effort. It is also positive interdependence that results in a joint superordinate identity. Students need to develop a unique identity as an individual, a social identity based among other things on their ethnic, historical, and cultural background, and a superordinate identity that unites them with all the other members of their society. At the same time they need to understand the social identity of classmates and respect them as collaborators and friends. It is positive interdependence, furthermore, that underlies a common culture that defines the values and nature of the society in which the students live.

2. Individual Accountability

Individual accountability exists when the performance of each individual student is assessed and the results are given back to the group and the individual. It is important that the group knows who needs more assistance, support, and encouragement in completing the assignment. It is also important that group members know that they cannot "hitch-hike" on the work of others. The purpose of cooperative learning groups is to make each member a stronger individual in his or her own right. Students learn together so that they can subsequently perform higher as individuals. To ensure that each member is strengthened, students are held individually accountable to do their share of the work. Common ways to structure individual accountability include (a) giving an individual test to each student, (b) randomly selecting one student's product to represent the entire group, or (c) having each student explain what they have learned to a classmate.

3. Face-To-Face Promotive Interaction

Once teachers establish positive interdependence, they need to maximize the opportunity for students to promote each other's success by helping, assisting, supporting, encouraging, and praising each other's efforts to learn. There are cognitive activities and interpersonal dynamics that only occur when students get involved in promoting each other's learning. This includes orally explaining how to solve problems, discussing the nature of the concepts being learned, teaching one's knowledge to classmates, and connecting present with past learning.

Accountability to peers, the ability to influence each other's reasoning and conclusions, social modeling, social support, and interpersonal rewards all increase as the face-to-face interaction among group members increase. In addition, the verbal and nonverbal responses of other group members provide important information concerning a student's performance. Silent students are uninvolved students who are not contributing to the learning of others as well as themselves. Promoting each other's success results in both higher achievement and in getting to know each other on a personal as well as a professional level. To obtain meaningful face-to-face interaction the size of groups needs to be small (two to four members). Finally, while positive interdependence creates the conditions for working together, it is the actual face-to-face interaction in which students work together and promote each other's success that the personal relationships are formed that are essential for developing pluralistic values.

4. Social Skills

Contributing to the success of a cooperative effort requires interpersonal and small group skills. Placing socially unskilled individuals in a group and telling them to cooperate does not guarantee that they will be able to do so effectively. Persons must be taught the social skills for high quality cooperation and be

motivated to use them. Leadership, decision-making, trust-building, communication, and conflict-management skills have to be taught just as purposefully and precisely as academic skills. Procedures and strategies for teaching students social skills may be found in D.W. Johnson (1991, 1997) and D.W. Johnson and F. Johnson (1997). Finally, social skills are required for interacting effectively with peers from other cultures and ethnic groups.

5. Group Processing

Group processing exists when group members discuss how well they are achieving their goals and maintaining effective working relationships. Groups need to describe what member actions are helpful and unhelpful and make decisions about what behaviors to continue or change. Students must also be given the time and procedures for analyzing how well their learning groups are functioning and the extent to which students are employing their social skills to help all group members to achieve and to maintain effective working relationships within the group. Such processing (a) enables learning groups to focus on group maintenance, (b) facilitates the learning of social skills, (c) ensures that members receive feedback on their participation, and (d) reminds students to practice collaborative skills consistently. Some of the keys to successful processing are allowing sufficient time for it to take place, making it specific rather than vague, maintaining student involvement in processing, reminding students to use their social skills while they process, and ensuring that clear expectations as to the purpose of processing have been communicated. Finally, when difficulties in relating to each other arise, students must engage in group processing and identity, define, and solve the problems they are having in working together effectively.

In order to effectively use cooperative learning, teachers must understand the nature of cooperation and the essential components of a well-structured cooperative lesson. Understanding what positive interdependence, promotive interaction, individual accountability, social skills, and group processing are, and developing skills in structuring them, allow teachers to (a) adapt cooperative learning to their unique circumstances, needs, and students and (b) fine-tune their use of cooperative learning to solve problems students are having in working together.

Types of Cooperative Learning

Cooperative learning groups may be used to teach specific content (*formal cooperative learning groups*), to ensure active cognitive processing of information during a lecture or demonstration (*informal cooperative learning groups*), and to provide long-term support and assistance for academic progress (*cooperative base groups*) (Johnson, Johnson, & Holubec, 1992, 1993).

Formal Cooperative Learning

Formal cooperative learning is students working together, for one class period to several weeks, to achieve shared learning goals and jointly complete specific tasks and assignments (such as decision making or problem solving, completing a curriculum unit, writing a report, conducting a survey or experiment, reading a chapter or reference book, learning vocabulary, or answering questions at the end of the chapter). In formal cooperative learning groups teachers (Johnson, Johnson, & Holubec, 1993):

1. Specify the objectives for the lesson. In every lesson there should be an academic objective specifying the concepts and strategies to be learned and a social skills objective specifying the interpersonal or small group skill to be used and mastered during the lesson.
2. Make preinstructional decisions. A teacher has to decide on the size of groups, the method of assigning students to groups, the roles students will be assigned, the materials needed to conduct the lesson, and the way the room will be arranged.
3. Explain the task and the positive interdependence. A teacher clearly defines the assignment, teaches the required concepts and strategies, specifies the positive interdependence and individual accountability, gives the criteria for success, and explains the expected social skills to be engaged in.
4. Monitor students' learning and intervene within the groups to provide task assistance or to increase students' interpersonal and group skills. A teacher systematically observes and collects data on each group as it works. When it is needed, the teacher intervenes to assist students in completing the task accurately and in working together effectively.
5. Assess students' learning and help students process how well their groups functioned. Students' learning is carefully assessed and their performances are evaluated. Members of the learning groups then process how effectively they have been working together.

Informal Cooperative Learning

Informal cooperative learning consists of having students work together to achieve a joint learning goal in temporary, ad hoc groups that last from a few minutes to one class period (Johnson, Johnson, & Holubec, 1992; Johnson, Johnson, & Smith, 1991). During a lecture, demonstration, or film, informal cooperative learning can be used to (a) focus student attention on the material to be learned, (b) set a mood conducive to learning, (c) help set expectations as to what will be covered in a class session, (d) ensure that students cognitively process the material being taught, and (e) provide closure to an instructional session. During direct teaching the instructional

challenge for the teacher is to ensure that students do the intellectual work of organizing material, explaining it, summarizing it, and integrating it into existing conceptual structures. Informal cooperative learning groups are often organized so that students engage in three-to-five minute focused discussions before and after a lecture and two-to-three minute turn-to-your-partner discussions interspersed throughout a lecture.

Cooperative Base Groups

Cooperative base groups are long-term, heterogeneous cooperative learning groups with stable membership (Johnson, Johnson, & Holubec, 1992; Johnson, Johnson, & Smith, 1991). The purposes of the base group are to give the support, help, encouragement, and assistance each member needs to make academic progress (attend class, complete all assignments, learn) and develop cognitively and socially in healthy ways. Base groups meet daily in elementary school and twice a week in secondary school (or whenever the class meets). They are permanent (lasting from one to several years) and provide the long-term caring peer relationships necessary to influence members consistently to work hard in school. They formally meet to discuss the academic progress of each member, provide help and assistance to each other, and verify that each member is completing assignments and progressing satisfactorily through the academic program. Base groups may also be responsible for letting absent group members know what went on in class when they miss a session. Informally, members interact every day within and between classes, discussing assignments, and helping each other with homework. The use of base groups tends to improve attendance, personalize the work required and the school experience, and improve the quality and quantity of learning. The larger the class or school and the more complex and difficult the subject matter, the more important it is to have base groups. Base groups are also helpful in structuring homerooms and when a teacher meets with a number of advisees.

The Cooperative School

In addition to structuring classroom work cooperatively, school administrators may structure teachers into cooperative teams. There are three types of cooperative teams within a school (Johnson & Johnson, 1994). *Colleagial teaching teams* are formed to increase teachers' instructional expertise and success. They consist of two to five teachers who meet weekly and discuss how better to implement cooperative learning within their classrooms. Teachers are assigned to *task forces* to plan and implement solutions to school-wide issues and problems such as curriculum adoptions and lunchroom behavior. *Ad hoc decision-making groups* are used during faculty meetings to involve all staff members in important school decisions.

Some cooperative learning procedures contain a mixture of cooperative, competitive, and individualistic efforts while others are "pure." The original "jigsaw" procedure (Aronson, 1978), for example, is a combination of resource interdependence (cooperative) and individual reward structure (individualistic). Teams-Games-Tournaments (DeVries & Edwards, 1974) and Student-Teams-Achievement-Divisions (Slavin, 1986) are mixtures of cooperation and intergroup competition. Team-Assisted-Instruction (Slavin, 1986) is a mixture of individualistic and cooperative learning. When the results of "pure" and "mixed" operationalizations of cooperative learning were compared, the "pure" operationalizations produced higher achievement.

In a group, differences among individuals in personality, gender, attitudes, background, social class, reasoning strategies, cognitive perspectives, information, ability levels, and skills were found to promote achievement and productivity (see Johnson & Johnson, 1989).

Interpersonal Relationships

Individuals care more about each other and are more committed to each other's success and well-being when they work together to get the job done than when they compete to see who is best or work independently from each other. This is true when groups are homogeneous and it is also true when individuals in groups differ in intellectual ability, handicapping conditions, ethnic membership, social class, and gender. When groups are heterogeneous, cooperating on a task results in more realistic and positive views of each other. As relationships become more positive, there are corresponding increases in productivity, feelings of personal commitment and responsibility to do the assigned work, willingness to take on and persist in completing difficult tasks, morale, and commitment to peer's success and growth. Absenteeism and turnover of membership decreases.

There are 180 studies that have been conducted since the 1940s on the relative impact of cooperative, competitive, and individualistic experiences on interpersonal attraction (see Johnson & Johnson (1989) for a summary of these studies). The data from a meta-analysis of these 180 studies seemed to indicate that cooperative experiences promote greater interpersonal attraction than do competitive or individualistic ones. Studies that were able to operationalize "cooperation" effectively seemed to indicate a stronger impact of cooperation on interpersonal attraction. The positive relationships formed transferred to voluntary choice situations. Even when individuals initially dislike each other, cooperative experiences have been found to promote liking.

Much of the research on interpersonal relationships has been conducted on relationships between white and minority students and between nonhandicapped and handicapped students (Johnson & Johnson, 1989). There have been over 40 experimental studies comparing some combination of cooperative, com-

The use of cooperative teams at the building level ensures that there is a congruent cooperative team-based organizational structure within both classrooms and the school. Finally, the superintendent uses the same types of cooperative teams to maximize the productivity of district administrators.

What Do We Know About Cooperative Efforts: The Research

Learning together to complete assignments can have profound effects on students. A great deal of research has been conducted comparing the relative effects of cooperative, competitive, and individualistic efforts on instructional outcomes. During the past 100 years over 550 experimental and 100 correlational studies have been conducted by a wide variety of researchers in different decades with different age subjects, in different subject areas, and in different settings (see Johnson & Johnson, 1989, for a complete listing and review of these studies).

The type of interdependence structured among students determines how they interact with each other, which in turn largely determines instructional outcomes. Structuring situations cooperatively results in students interacting in ways that promote each other's success, structuring situations competitively results in students interacting in ways that oppose each other's success, and structuring situations individualistically results in no interaction among students. These interaction patterns affect numerous instructional outcomes, which may be subsumed within the three broad and interrelated categories of effort exerted to achieve, quality of relationships among participants, and participants' psychological adjustment and social competence (Johnson & Johnson, 1989).

Achievement

Over 375 studies have been conducted over the past 100 years to investigate how successful competitive, individualistic, and cooperative efforts are in promoting productivity and achievement (for a detailed explanation of these studies, see Johnson & Johnson, 1989). Working together to achieve a common goal produces higher achievement and greater productivity than does working alone. This is confirmed by so much research that it stands as one of the strongest principles of social and organizational psychology. Cooperative learning, furthermore, seems to have resulted in more higher-level reasoning, more frequent generation of new ideas and solutions, and greater transfer of what is learned within one situation to another than did competitive or individualistic learning. The more conceptual the task, the more problem solving required, the more desirable higher-level reasoning and critical thinking, the more creativity required, and the greater the application required of what is being learned to the real world, the greater the superiority of cooperative over competitive and individualistic efforts.

petitive, and individualistic experiences on cross-ethnic relationships and over 40 similar studies on mainstreaming of handicapped students (Johnson & Johnson, 1989). Their results were consistent. Working cooperatively creates more positive relationships among diverse and heterogeneous students than does learning competitively or individualistically.

Once the relationship is established, the next question becomes "why?" The social judgments individuals make about each other increase or decrease the liking they feel towards each other. Such social judgments are the result of either a process of acceptance or a process of rejection (Johnson & Johnson, 1989). The process of acceptance is based on the individuals promoting mutual goal accomplishment as a result of their perceived positive interdependence. The promotive interaction tends to result in frequent, accurate, and open communication; accurate understanding of each other's perspective; inducibility; differentiated, dynamic, and realistic views of each other; high self-esteem; success and productivity; and expectations for positive and productive future interaction. The process of rejection results from oppositional or no interaction based on perceptions of negative or no interdependence. Both lead to no or inaccurate communication; egocentrism; resistance to influence; monopolistic, stereotyped, and static views of others; low self-esteem; failure; and expectations of distasteful and unpleasant interaction with others. The processes of acceptance and rejection are self-perpetuating. Any part of the process tends to elicit all the other parts of the process.

Psychological Health and Social Competence

Working cooperatively with peers and valuing cooperation results in greater psychological health and higher self-esteem than does competing with peers or working independently. Personal ego-strength, self-confidence, independence, and autonomy are all promoted by being involved in cooperative efforts with caring people who are committed to each other's success and well-being, and who respect each other as separate and unique individuals. When individuals work together to complete assignments, they interact (mastering social skills and competencies), they promote each other's success (gaining self-worth), and they form personal as well as professional relationships (creating the basis for healthy social development). Individuals' psychological adjustment and health tend to increase when schools are dominated by cooperative efforts. The more individuals work cooperatively with others, the more they see themselves as worthwhile and as having value, the greater their productivity, the greater their acceptance and support of others, and the more autonomous and independent they tend to be. A positive self-identity is developed basically within supportive, caring, cooperative relationships while a negative self-identity is developed within competitive, rejecting, or uncaring relationships. Children who are isolated usu-

ally develop the most self-rejecting identities. Cooperative experiences are not a luxury. They are an absolute necessity for the healthy social and psychological development of individuals who can function independently.

Reciprocal Relationships Among Outcomes

There are bidirectional relationships among efforts to achieve, quality of relationships, and psychological health (Johnson & Johnson, 1989). Each influences the others. First, caring and committed friendships come from a sense of mutual accomplishment, mutual pride in joint work, and the bonding that results from joint efforts. The more students care about each other, on the other hand, the harder they will work to achieve mutual learning goals. Second, joint efforts to achieve mutual goals promote higher self-esteem, self-efficacy, personal control, and confidence in their competencies. The healthier psychologically individuals are, on the other hand, the better able they are to work with others to achieve mutual goals. Third, psychological health is built on the internalization of the caring and respect received from loved-ones. Friendships are developmental advantages that promote self-esteem, self-efficacy, and general psychological adjustment. On the other hand, the healthier people are psychologically (i.e., free of psychological pathology such as depression, paranoia, anxiety, fear of failure, repressed anger, hopelessness, and meaninglessness), the more caring and committed their relationships. Since each outcome can induce the others, they are likely to be found together. They are a package with each outcome a door into all three outcomes. And together they induce positive interdependence and promotive interaction.

Research In Different Cultures

Part of the generalizability of the research on cooperation is the diversity of settings in which the research has been conducted. Research on cooperation has been conducted in numerous countries and cultures. In North America (United States, Canada, Mexico), for example, research has been conducted with Caucasian, Black-American, Native-American, and Hispanic subject populations. In addition, cooperation has been researched in Asia (Japan), Australia, New Zealand, the Middle East (Israel), Africa (Nigeria, South Africa), Europe (Greece, Norway, Sweden, Finland, Germany, France, Netherlands, England), and many other countries. Essentially, the findings have been consistent. Higher productivity, more positive relationships, and increased social adjustment and competencies are found in cooperative than in competitive or individualistic situations. The robustness of the research in a wide variety of cultures adds to the validity and generalizability of the theory. The critical research, however, has yet to be conducted. It seems reason-

able that different cultures have different definitions of (a) what is cooperative and competitive, and (b) where each is appropriate. Within the United States, for example, different Native American tribes have quite different views of cooperation and competition and different ways of expressing them. Given the hundreds of studies that have established the basic theory of cooperation and competition, there is a need for considerable more research to establish the cultural nuances of how cooperative efforts are conducted.

Conclusion

While lessons may be structured competitively, individualistically, and cooperatively, cooperation by far has the most powerful and positive influences on instructional outcomes. Cooperative learning is the instructional use of small groups so that students work together to maximize their own and each other's learning. Cooperative learning may be differentiated from other small groups, such as pseudo groups and traditional classroom learning groups. The basic elements that make cooperation work are positive interdependence (members perceiving that they sink or swim together), individual accountability (each member does his or her fair share of the work), promoting each other's success (members provide face-to-face help and support), appropriately using social skills (such as leadership, communication, and conflict resolution skills), and periodically processing how to improve the effectiveness of the group. There are three types of cooperative learning: formal cooperative learning, informal cooperative learning, and cooperative base groups. What makes cooperative learning unique is the quantity and quality of research supporting its use. When efforts are structured cooperatively, there is considerable evidence that students will achieve higher (learn more, use higher level reasoning strategies more frequently, build more complete and complex conceptual structures, and retain information learned more accurately), build more positive and supportive relationships (including relationships with diverse individuals), and develop in more healthy ways (psychological health, self-esteem, ability to manage stress and adversity).

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